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### **Environmental Mediating Factors**

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# **Association between insecure attachment and attention deficit hyperactivity disorder- environmental mediating factors**

*Association between insecure attachment and attention deficit hyperactivity disorder- environmental mediating factors*

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## ***Abstract***

### ***Introduction***

*Psychological theories have postulated an association between insecure attachment and attention deficit hyperactivity disorder (ADHD).*

### ***Objective***

*To investigate possible association between insecure attachment and ADHD in both children and adults.*

### ***Method***

*Review of literature review using the PsycINFO, Medline, and EMBASE databases.*

### ***Results***

*Twenty nine studies were included in the review. Overall, the studies showed that parental attachment problems and environmental mediating factors were significantly associated with childhood ADHD. Adults with ADHD had a much higher incidence of insecure attachment styles than reported in the general population.*

### ***Conclusion***

*There seems to be a clear association between ADHD and insecure attachment. It is likely that early intervention in the form of parent training and pharmacological treatment may prevent development of attachment problems. But such studies have not been carried out. Furthermore, adults with ADHD might need treatment for their lack of attachment competences as well. More research on this topic is much needed.*

*Keywords: Attachment, ADHD, attention deficit hyperactivity disorder, treatment*

## Background

John Bowlby and Mary Ainsworth developed attachment theory based on observations of mother-child interactions {Bowlby, 1958 2618 /id;Bowlby, 1960 2619 /id;Bowlby, 1960 2638 /id}. Forms of attachment include *secure*, *insecure dismissing*, *insecure preoccupied*, and *disorganised* (Ainsworth, Blehar, Waters, & Wall, 1978; Main & Solomon, 1990). Bowlby's theory of attachment has a biological focus, claiming that young children form attachments with their caregivers as a survival instinct, with children seeking out safety from their mothers in stressful situations, such as hunger or fear. Bowlby's theory also has a developmental aspect with regard to attachment, exploration, and fear factors. The child's experience with the caretaker triggers the development of *internal working models*, which reflect the outer lived experiences on an inner level. Experiences in the social environment could create a securely attached child, in whom the majority of internal working models are positive, or an insecurely attached child, in whom the majority of internal working models are negative {Bowlby, 1969 2641 /id}.

Securely attached children can use their primary caregivers as a safe base from which they can move out in the world on discovery trips. Later on, these children meet the outside world with positive expectations and trust. An insecurely attached child will have negative expectations of his or her surroundings, and will be troubled by anxiety. It is important to emphasise that problems with attachment competencies can also be caused by inborn constitutional difficulties. In a normal population, 60% of children have secure attachment competencies, whereas among children with ADHD lower than 10% have secure attachment competencies (Shmueli-Goetz, Target, Fonagy, & Datta, 2008; Storebo, Gluud, Winkel, & Simonsen, 2012)

Many psychological theories have claimed an association between attachment insecurity and ADHD (Fonagy, Gergerly, Jurist, & Target, 2012). Franc et al. (2008) conducted a review investigating the association between ADHD and attachment and found that emotional

dysregulation is an important feature of both reactive attachment disorder and ADHD. Furthermore, the authors noted that the perinatal period seems to be pivotal in both ADHD and attachment disorders (Franc, Maury, & Purper-Ouakil, 2009).

## **Objective**

The aim of this study was to explore a possible association between attachment insecurity and ADHD in children and adults.

## **Method**

The PsycINFO, Medline, and EMBASE databases were searched for relevant abstracts using the terms *ADHD* and *attachment*, as well as ADHD-related terms such as *minimal brain disorder*, *hyperactivity*, and *attention deficit disorder* (Higgins & Green, 2009). Attachment-related terms included *reactive attachment disorder*, *emotional attachment*, *empathy*, *parent-child relationship*, and *object relations*. The complete search strategy is described in detail in Appendix 1.

Four literature searches were conducted. The first database search (May 2010) resulted in 71 records, 9 of which were relevant; the second search (September 2011) resulted in 159 records, 3 of which were relevant; and the third search (February 2012) resulted in 308 records, 13 of which were relevant. The fourth search (January 2013) resulted in 184 records of which 2 were relevant. Two additional articles were found by hand searching. The articles were considered relevant if they discussed any association between ADHD and attachment disorders. A prerequisite for inclusion was that both wording; ADHD and attachment were used explicit in the result or discussion section of the study or ADHD and possible attachment - ADHD mediating factors were mentioned. To improve the overview and clarity we divided the studies into four groups, looking at the associations: 1) The association between parenting styles/ parent insecure attachment competences and child ADHD, 2) The association between child ADHD and child insecure attachment competences, 3) The association between adult ADHD/ attachment problems and insecure attachment competences/ADHD symptoms in their parents, 4) The association between adult ADHD and adult insecure attachment competences.

## **Results**

Twenty nine studies were included in the review, and all except one showed a relevant association, as discussed below.

**1) The association between parenting styles or insecure parental attachment competencies and childhood ADHD** (Audet & Le, 2011; Crittenden & Kulbotten, 2007; Dallos & Smart, 2011; Ellis & Nigg, 2009; Finzi-Dottan, Manor, & Tyano, 2006; Green, Stanley, & Peters, 2007; Johnston, Murray, Hinshaw, Pelham, & Hoza, 2002; Karabekiroglu & Rodopman-Arman, 2011; Kissgen et al., 2009; Lifford, Harold, & Thapar, 2008; Quiroga Garcia & Ibanez Fanes, 2007; Rochford, 2005; Skovgaard, 2010; Guttmann-Steinmetz, Crowell, Doron, & Mikulincer, 2011). Three of the studies in this category were prospective, 10 were retrospective or cross sectional, and one was a case study.

The three prospective studies showed that parental rejection, unresolved maternal mourning, parent-child relational problems, and mother-child attachment problems in early childhood significantly increased the risk for ADHD in school age children (Lifford et al., 2008; Rochford, 2005; Skovgaard, 2010). Rochford underlined that children with ADHD at an early age are at tremendous risk for developing insecure attachment disorders; early treatment for ADHD symptoms to prevent the development of attachment problems later on in life was recommended (Rochford, 2005).

The 10 retrospective and cross-sectional studies indicated a number of possible predictors of ADHD: mothers experiencing unresolved mourning during pregnancy, maternal and paternal depression, harsh parenting practices, maternal insecure attachment, maternal insecurity, and a high degree of maternal expressed emotion (EE) (Audet & Le, 2011; Crittenden & Kulbotten, 2007; Dallos & Smart, 2011; Ellis & Nigg, 2009; Finzi-Dottan et al., 2006; Green et al., 2007; Johnston et al., 2002; Karabekiroglu & Rodopman-Arman, 2011; Kissgen et al., 2009; Quiroga Garcia & Ibanez Fanes, 2007).

Green et al. (2007) found an association between a high degree of maternal EE and ADHD, as well as an association between child attachment representations and a high degree of maternal expressed emotion (Green et al., 2007). Johnston et al. (2002) found a correlation between parenting practices and depressive symptoms in the mother, with parenting practices correlated with symptom severity in the child. Maternal depressive symptoms, but not maternal childhood ADHD, were negatively

related to responsiveness in interactions with their children. Responsiveness of mothers in interactions with their children was negatively related to maternal reports of their parenting strategies. Childhood conduct problems excluding ADHD symptoms were uniquely and negatively related to maternal responsiveness (Johnston et al., 2002). Karabekiroglu and Rodopman-Arman (2011) found an association between maternal insecure attachment style and severity of hyperactivity in young children; this association was stronger when combined with paternal depression. The researchers found no association between paternal insecure attachment style and hyperactivity in the child (Karabekiroglu & Rodopman-Arman, 2011). Kissgen et al. (2009) found that prevalence of maternal insecure attachment representations increased with the severity of their children's ADHD symptoms (Kissgen et al., 2009). Ellis and Nigg (2009) found that low paternal involvement was associated with ADHD regardless of ADHD subtype, while this was not the case with low maternal involvement (Ellis & Nigg, 2009). Finzi-Dottan et al. (2006) found that parenting styles fostering extreme autonomy were associated with ADHD symptoms, and high levels of emotionality were associated with anxious attachment, while restricted autonomy combined with a high activity level was associated with avoidant attachment (Finzi-Dottan et al., 2006). In a study of three matched groups of adopted Romanian orphans with different levels of deprivation, Audet and Le Mare (2010) found that attachment difficulties were negatively predictive of inattention and hyperactivity in children who had experienced less than 19 months of deprivation but unrelated to inattention or over-activity in children who had experienced more than 19 months of deprivation (Audet & Le, 2011). Based on a single case study, Crittenden and Kulbotten (2007) underlined the hypothesis that ADHD may serve as a self-protective function in families where children feel insecure and unsafe and in which children can not organise their emotions around a specific danger (Crittenden & Kulbotten, 2007). Quiroga and Fanes (2007) discovered that children with ADHD and attachment problems had much worse prognosis than those without attachment problems (Quiroga Garcia & Ibanez Fanes, 2007). Guttman-Steinmetz found that there were significant association between mother's and children's secure base scriptedness and non ADHD children and that none such an association existed in an ADHD sample. In the ADHD group, maternal reports of children's ADHD symptoms were negatively associated with the childrens secure base scriptedness (Guttmann-Steinmetz et al., 2011).

## **2) The association between childhood ADHD and child insecure attachment competencies**

(Clarke, Ungerer, Chahoud, Johnson, & Stiefel, 2002; Fearon & Belsky, 2004; Follan et al., 2011;

Li, Xia, & Zhang, 2007; Niederhofer, 2009; Pinto, Turton, Hughes, White, & Gillberg, 2006; Storebo et al., 2012; Abrines et al., 2012; Bohlin, Eninger, Brocki, & Thorell, 2012). Green et al.'s (2007) study is also discussed here because this study yielded data suitable for discussing both groups 1) and 2). Three of the studies in this category were prospective and six were cross sectional and retrospective. Two prospective studies showed that poorer attention emerged in small children with disorganised attachment, making a clear association between disorganised attachment at an early age and later ADHD symptoms. The studies also demonstrated that disorganised attachment and inhibition were both longitudinally related to ADHD symptoms and externalising behaviours (Fearon & Belsky, 2004; Pinto et al., 2006). The third prospective study in this group also found a significant association between disorganized attachment and ADHD-behaviour, externalizing problem behaviour and callous-unemotional traits. Furthermore they investigated associations to poor inhibition independently and simultaneously with disorganized attachment and found that when it comes to CU-traits disorganized attachment contributes beyond poor inhibition (Bohlin et al., 2012).

The six retrospective/cross sectional studies demonstrated that insecure attachment competencies in children are clearly associated with childhood ADHD. Li et al. (2007) found that attachment security in children with ADHD was significantly lower than in controls (Li et al., 2007). In the Social Skills Training and Attachment (SOSTRA) trial, all the children ( $n = 56$ ) were interviewed at entry using the Child Attachment Interview (CAI). Results indicated that 93% of the children had some type of insecure attachment, leaving only 7 % of the children with secure attachment competencies (Storebo et al., 2012). Clarke et al. (2002) found that attachment insecurities in children with ADHD featured heightened emotional expression and out-of-control affect. Based on these findings, the authors argue that treatment for ADHD must incorporate relationship-building components (Clarke et al., 2002). Green et al. (2007) investigated the relationship between child attachment representations, psychopathology, and atypical maternal parenting in a high-risk sample. They found that a diagnosis of ADHD was associated with higher levels of attachment disorganisation, but that ADHD symptoms alone did not account for the high levels of disorganised attachment in the sample, with over 50% of the disorganised children not diagnosed with ADHD. The study did find, however, that attachment disorganisation was associated with high maternal EE. Very high maternal EE was associated with severe pervasive disorganisation of attachment in the child. Low maternal EE was associated with less child symptomology and better child attachment

organisation (Green et al., 2007). Niederhofer (2009) assessed children with ADHD-like symptoms, and found that, of 79 children with insecure attachment competencies, 72 showed ADHD-like symptoms, whereas only five of the 22 children with secure attachment competencies showed such symptoms (Niederhofer, 2009). In a study by Arbines et al ( 2012) it was showed that children with a secure attachment showed significantly less attention problems (Abrines et al., 2012).

In the study, conducted by Follan et al. (2010), the investigators tried to determine whether it was possible to discriminate between children with ADHD and children with reactive attachment disorder. The study concluded that it is possible to clearly discriminate between the two syndromes (Follan et al., 2011).

**3) The association between adult ADHD or attachment problems and insecure attachment competencies and ADHD symptoms in their parents** (Brown, 2004; Edel, Juckel, & Brune, 2010; Miller, 2012). All three studies were retrospective/cross-sectional studies. Miller (2003) suggested that some child-rearing practices may be an important risk factor for ADHD (Miller, 2012). Brown (2004) found a high incidence of child abuse in the childhoods of adults with ADHD, making abuse a statistically significant predictor of attachment style. There was also a significantly higher incidence of insecure attachment competencies in the sample than is reported in the general population (Brown, 2004). Edel et al. (2010) found that adults who recalled ADHD symptoms in their own parents were more likely to be experiencing attachment problems in their current partnerships. This was especially true when the mothers of adult patients with ADHD exhibited ADHD symptoms (Edel et al., 2010).

**4) The association between adult ADHD and adult insecure attachment competencies** (Abdel-Hamid et al., 2011; Mccoy, 2004; Pazvantoglu et al., 2011). Three retrospective/cross sectional studies found that adults with ADHD had much higher incidences of insecure attachment styles than is reported in the general population. Abdel-Hamid (2011) also found that adults with ADHD had a significantly reduced quality of relationships, with the patients feeling less romantic love and more fear of attachment and intimacy as compared to healthy controls (Abdel-Hamid et al., 2011). The authors underlined the necessity for attending to these problems in psychotherapy with adults with ADHD. Pazvantoglu et al. (2011) found that adults diagnosed with ADHD had a higher rate of



insecure attachment style (Pazvantoglu et al., 2011), and McCoy and Donna (2004) found a significant association between ADHD and insecure relationship style (Mccoy, 2004).

## **Discussion**

This review demonstrated the associations between parental attachment problems, and childhood ADHD. In this factors such as problems in the parent-child relationship, unresolved maternal mourning, maternal/parental depressive symptoms, inconsistent or rejecting parenting styles were identified. Furthermore, small children with disorganised attachment tend to have poorer attention, and there is a clear connection between disorganised attachment and ADHD symptoms and externalising behaviours. Studies indicate associations between parent and child attachment competencies and childhood ADHD, adult attachment competencies and adult ADHD, and adult ADHD and insecure attachment competencies in those adults' parents.

Some of the studies revealed an association between maternal expressed emotion and both child ADHD and child attachment representations. One study found a possible association between unresolved maternal mourning during pregnancy and child ADHD. In one study, attachment insecurity in children with ADHD was expressed through heightened emotional expression. Unregulated emotions seemed to play a part in some of the other studies, as depressive symptoms both in mothers and fathers were associated with ADHD symptoms in the children.

These findings are important in identifying the causes of ADHD-symptoms and designing effective treatment. In the Social Skills Training and Attachment (SOSTRA) the results indicated that 93% of the children had some type of insecure attachment so it seems to be very common. Attachment competencies are important in many areas of life, and the lack of these skills can ultimately result in complicated problems and comorbid disorders. Children and adults with ADHD may require treatment addressing attachment problems and emotional dysregulation. Given the focus on behavioural symptoms in ADHD diagnosis, it is possible that some children have ADHD stemming more from attachment difficulties than from innate neuropsychological differences; in 'core' ADHD, genetic factors account for much of the variance, but in 'symptomatic' ADHD, attachment factors may play a greater role in the etiology. It is not possible to know whether attachment problems definitely lead to ADHD, or ADHD leads to attachment problems. They seem to be mutual risk factors; when one of the conditions occurs, there is an increased risk of developing the

other. Therefore, treatment for ADHD symptoms at an early age may prevent the development of attachment problems. There is also a need for a more broad approach when assessing children with ADHD where also the families strength and weaknesses are evaluated. For instance by using complementary assessment of the parental attachment representations (using for instance the Adult Attachment Interview), parental mental state, and social support, as well as direct observations of the parent child interaction. This broader assessment could give a better understanding of the family dynamics that influence the pathogenesis of ADHD and also be the basis of a family intervention with the focus on improving the relationship between parent and child.

The review points to a clear correlation between characteristics in the parents and the parents' resources and to symptom severity in the child. Future research should be oriented towards the whole family. In regards to treatment and prevention future interventions should include the concept of "resilience" in further research. Resilience is competence in the presence of significant stressors. The studies of this review provide interesting perspectives in relation to research in resilience of the family system.

## **Conclusion**

There are clear associations between ADHD and insecure attachment competencies. They are mutual risk factors; when one of the conditions occurs there is an increased risk for developing the other. Possible effective treatments might focus on the attachment and emotional dysregulation problems in children with both ADHD and attachment problems. Treatments focusing on the parent-child relationship may prevent the development of one or both disorders; early treatment for ADHD symptoms in children may also help them to avoid developing attachment problems. Furthermore, adults with ADHD might need treatment for their lack of attachment competences as well. However, more research on this topic is much needed.

## **Acknowledgement**

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## **Appendix:**

Search strategy: Attachment and ADHD

#### EMBASE

1. exp Attention Deficit Disorder/
2. adhd.mp.
3. addh.mp.
4. exp Hyperactivity/
5. Hyperkinesia/
6. (attention adj3 deficit).mp.
7. hyperactiv\*.mp.
8. hyperkinesis\*.mp.
9. (minimal adj brain adj3 disorder\*).mp.
10. (minimal adj brain adj3 dysfunction\*).mp.
11. (minimal adj brain adj3 damage\*).mp.
12. 6 or 11 or 3 or 7 or 9 or 2 or 8 or 1 or 4 or 10 or 5
28. attachment.ti,ab.
29. \*emotional attachment/ or \*emotional deprivation/ or \*empathy/ or \*love/
30. 28 or 29
31. 12 and 30

#### MEDLINE

21. exp Attention Deficit Disorder with Hyperactivity/
22. adhd.mp.
23. addh.mp.
24. (attention adj3 deficit).mp.
25. hyperactiv\$.mp.
26. hyperkinesis\$.mp.
27. exp Hyperkinesis/
28. (minimal adj brain adj3 disorder\$).mp.
29. (minimal adj brain adj3 dysfunction\$).mp.
30. (minimal adj brain adj3 damage\$).mp.
31. 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30
32. Object Attachment/
33. exp family relations/ or interpersonal relations/
34. attachment.ti,ab.
35. 32 or 33 or 34
36. 31 and 35

(rekonstrueret, da den oprindelige søgestrategi ikke var gemt)

#### PsycINFO

1. exp attention deficit disorder/
2. adhd.mp.
3. addh.mp.
4. (attention adj3 deficit).mp.
5. hyperactiv\$.mp.
6. hyperkinesis\$.mp.
7. exp Hyperkinesis/
8. (minimal adj brain adj3 disorder\$).mp.
9. (minimal adj brain adj3 dysfunction\$).mp.
10. (minimal adj brain adj3 damage\$).mp.
11. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10
27. exp attachment behavior/ or exp attachment disorders/ or exp attachment theory/ or exp "dependency (personality)"/ or exp emotional

development/ or exp intimacy/ or exp love/ or exp object relations/ or  
 exp parent child relations/ or exp psychological distance/ or exp  
 separation reactions/  
 28. attachment.ti,ab.  
 29. 27 or 28  
 30. 11 and 29

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